

AMENDMENTS TO THE SPECIFICATION:

Please replace the paragraphs appearing at page 3, lines 17- page 6, line 21, with the following revised paragraphs:

Accordingly, a first aspect of the present invention provides an attachment intended to be secured to an article by a tagging gun, the attachment comprising: a flexible cord formed from several fibre strands which have been twisted together; a cross-shaped member or a T-shaped member, said cross-shaped or T-shaped member having a plastic cross bar and down bar; and a terminal member, wherein at one end of the flexible cord, the flexible cord is fixed to the down bar of the cross-shaped or T-shaped member, said terminal member being fixed to the other end of the flexible cord comprising a length of flexible cord fixed to a plastic cross-bar or T-shaped member at one end and a terminal member at the other end.

The cord is preferably in the form of a string formed from several fibre strands which have been twisted together.

The cord may be formed of rayon, cotton, hemp, elastic or any other suitable material. Preferably the cord is formed of a different material to the plastic cross-bar shaped or T-shaped member. The cord may be formed of a natural material. If the The cord is made may be formed of a man-made natural material. The cord then it is preferably formed of a material which has a higher melting point than the plastic cross-bar and terminal member of the attachment; this enables the cross-bar (or T-shaped member) shaped or T-shaped member and terminal member to be moulded around the cord.

The flexible cord of the above type has several advantages over the elongate plastic filament used in prior art attachments. The cord is softer than a plastic filament and this causes less discomfort to a customer trying on the clothing. It also has a superior appearance and its colour and texture can easily be matched to the fabric article to which the attachment is applied. The cord is more flexible than a plastic filament and is generally "limp", that is it does not have a resilient tendency to return to an initial position; it therefore lies more naturally with an article to which it is applied. For example a label supported by an attachment having a flexible cord will hang more

naturally than an attachment having a plastic filament. Furthermore an attachment having the above type of cord a cord is less likely to cause irritation to a customer trying on a garment bearing the attachment, especially if the cord has low resilience and/or high flexibility and/or is composed of a soft material.

Preferably the The cord is usually formed of a material which is more flexible and/or softer than the material of the plastic cross-bar cross-shaped or T-shaped member to which it is fixed.

The terminal member is preferably made of plastic. It may be a paddle, ball or other configuration which serves to prevent a label or tag from sliding off the end of the cord. Alternatively it could be a hook by which the attachment and article to which it is attached may be suspended, or an eye which could be threaded onto a support member of a display, a second cross-bar cross-shaped or T-shaped member so that the attachment can be used to attach two fabric articles together, or a snap-fit connector, as described above.

Preferably the cord is fixed to the cross-bar cross-shaped or T-shaped member by moulding of the cross-bar cross-shaped or T-shaped member around the cord. This provides a neat, strong connection between the cross-bar cross-shaped or T-shaped member and the cord. The cord does not need to extend all the way through and generally extends only part way into the cross-bar cross-shaped or T-shaped member. Preferably the cord does not extend as far as the cross part (i.e. the junction between the bars of the cross-bar or down and cross stroke of the "T") of the cross-bar cross-bar and down-bar of the cross-shaped member or T-shaped member. Preferably one end of the cross-bar cross-shaped (or the end of the down stroke of the T-shaped member) or T-shaped member is provided with an enlarged flange and it is this enlarged flange, but not the rest of the cross-bar cross-shaped or T-shaped member, which is moulded around the cord. The enlarged flange may have any shape, for example, it may be cylindrical or spherical. In many cases the cord will have a larger cross sectional area than cross-bar cross-shaped or T-shaped member, but a smaller cross sectional area than the enlarged flange. However, if the cord has a small enough cross- sectional area it may pass all the way through the cross-bar cross-shaped or T-

shaped member and out the other end (if this is the case then the enlarged flange is unnecessary).

Preferably the terminal member is similarly moulded around the cord. The cord may extend all the way through or only partially into the terminal member.

According to a second aspect of the invention there is provided an assembly comprising a plurality of attachments, each attachment comprising: a flexible cord formed from several fibre strands which have been twisted together; a cross-shaped member or a T-shaped member, said cross-shaped or T-shaped member having a plastic cross bar and down bar; and a terminal member, wherein, at one end of the flexible cord, the flexible cord is fixed to the down bar of the cross-shaped or T-shaped member, said terminal member being fixed to the other end of the flexible cord, said assembly further comprising a common spine, according to the first aspect of the invention, and a spine wherein the cross-bar or T-shaped member of each of said attachment is being releasably attached to said common spine via said cross-shaped member of said T-shaped member, such that, in use, each attachment is being independently severable from said common spine by means of a tagging gun.

Please replace the paragraphs appearing at page 7, line 4- page 12, line 2, with the following revised paragraphs:

A third aspect of the present invention provides a method of making an attachment, the attachment comprising: a flexible cord; a cross-shaped member or a T-shaped member; and a terminal member, wherein, at one end of the flexible cord, the flexible cord is fixed to the cross-shaped or T-shaped member, said terminal member being fixed to the other end of the flexible cord, a plurality of attachments according to the first aspect of the invention, the method comprising the following steps:

- a) providing a mould with a first recess for moulding a cross-bar cross-shaped or T-shaped member and a second recess for moulding the said terminal member;
- b) placing a said flexible cord in the mould so that it passes extends between and passes, and at least partially into both said recesses;
- c) injecting liquid plastics material into the mould said recesses and allowing it to

~~solidify, so as to form a plastic terminal member and a plastic cross-bar or T-shaped member in the appropriate recesses around the portions of the cord in these recesses so that the terminal member and cross-bar or T-shaped member are fixed to the cord.~~

Preferably the cross-bar or T-shaped member first recess is shaped to form a cross-bar the cross-shaped or T-shaped member with an enlarged flange and in step b) the cord is placed so that it extends into the flange forming portion of said recess but not further into said recess. Generally the cord will have a cross sectional area such that it can fit into the enlarged flange portion of the recess, but not into the rest of the recess which has a smaller cross sectional area.

Surplus cord may then be cut off.

Preferably the cord is cut at or just below the terminal member or cross-bar/T-member cross-shaped or T-shaped member so as to separate the rest of the cord from the attachment formed by the cross-bar cross-shaped or T-shaped member, terminal member and length of cord therebetween. The rest of the cord may then be drawn through the mould so as to put it in the position described in step b) so that a new attachment can be formed; step c) can then be repeated and so on, so as to make a plurality of attachments.

Preferably the mould is in at least two parts and is opened after step c) so as to allow drawing of the cord and attachment through the mould into position for forming a new attachment.

In some embodiments, the The mould has more than two parts so that parts of the mould can be closed to clamp the cord into position, while parts of the mould remain open to allow the cord to be cut prior to moulding the new attachment. In these embodiments, preferably Preferably the cord is cut at the point at which it passes through or out of the enlarged flange section of the cross-bar cross-shaped or T-shaped member recess, so that the cord will extend into the enlarged flange portion of the new cross-bar or T-shaped member, but no further. In one embodiment the mould has five parts.

In another, preferred embodiment, the mould has only two parts and the cord is cut at a location remote from the mould.

Preferably the ~~cross-bar~~ cross-shaped or T-shaped member is formed with one of its bars extending substantially perpendicular to the parting plane of the mould.

In a preferred embodiment the above method is adapted to make an assembly of attachments according to the second aspect of the invention. Preferably this is achieved by providing the mould with a recess for moulding a spine and a plurality of ~~cross-bars~~ cross-shaped or T-shaped members attached to the spine and a plurality of recesses for moulding terminal members.

The cross-bar and spine recess thus has several ~~cross-bar~~ cross-shaped or T-shaped member portions, each respective ~~cross-bar~~ cross-shaped or T-shaped member portion of the recess is preferably positioned opposite a corresponding terminal member recess.

A plurality of cords can then be introduced, each cord being positioned between a terminal member recess and a respective ~~cross-bar~~ cross-shaped or T-shaped member portion of the spine and ~~cross-bar~~ cross-shaped or T-shaped member recess. Each cord may be stored on a respective reel and fed into the mould as required. The terminal member recesses may each have their own liquid plastic injection ports, or alternatively they can be in fluid communication, e.g. via a recess for moulding a connecting runner which can be snapped off the assembly to leave the final product. The cords can be pulled through the mould together, once the attachments and spine have been moulded, for example, by pulling the spine or a connecting runner between the moulded terminal members. Additional apparatus may be provided to grip a portion of the attachment, spine or connecting runner and automatically pull the completed attachments from the mould whilst also pulling new lengths of cord into the mould for subsequent moulding.

In alternative embodiments, a single cord can be positioned so that it extends back and forth between the terminal member recesses and ~~cross-bar~~ cross-shaped or T-shaped member portions of the spine and ~~cross-bar~~ cross-shaped or T-shaped member recess and at least partially into said recesses. Then once the liquid plastic has been injected and solidified, the surplus connecting pieces of cord can be cut to separate the attachments if necessary.

In this alternative the mould preferably has cord support means, such as pins, at least one of which is positioned or positionable adjacent the ~~cross-bar~~ cross-shaped or T-shaped member recesses and at least another of which is positioned or positionable adjacent or preferably behind the terminal, member recesses. By "behind" it is meant that the terminal member recesses are between the spine and ~~cross-bar~~ cross-shaped or T-shaped member recess and the cord support means "behind" them. The flexible cord can then be passed between the cord support means (e.g. by winding or looping around cord support pins) so that it extends back and forth between the ~~cross-bar~~ cross-shaped or T-shaped member and terminal member recesses.

So, for example the cord may pass from a first cross-bar recess, across the mould, to a first terminal member recess, then back across the mould to a second ~~cross-bar~~ cross-shaped or T-shaped member recess etc. Alternatively, the cord may pass between two adjacent ~~cross-bar~~ cross-shaped or T-shaped member recesses before passing back across the mould to the terminal member recesses and pass between two adjacent terminal member recesses before passing back across the mould again.

In this way, the cord passes through or enters partially into the recesses, so that when the liquid plastic is injected into and solidifies in the recesses, the cord is fixed to the terminal members and the cross-bars or T-shaped members. The cord may then be cut so as to separate any terminal members which have been connected together by the cord and so as to sever any cord connection between adjacent ~~cross-bars~~ cross-shaped or T-shaped members. The cord is thus cut into several lengths each length connecting a respective terminal member and ~~cross-bar~~ cross-shaped or T-shaped member and an assembly according to the second aspect of the invention is formed.

Please replace the paragraph beginning at page 12, line 10, with the following revised paragraph:

In one embodiment a first set of cord support means is permanently fixed in position adjacent the spine and ~~cross-bar~~ cross-shaped or T-shaped member recess and a second set of cord support means is slid able in the mould between a first position

LYON, Roy
Appl. No. 10/510,603
April 19, 2005

adjacent the spine and cross-bar cross-shaped or T-shaped member recess and a second position adjacent the terminal member recesses. The flexible cord is laid on the mould such that it extends between the two sets of cord support means and the second set is then moved to the second position so that parts of the cord are kept adjacent the spine and cross-bar cross-shaped or T-shaped member recess by the first set of support means and parts of the cord are pulled toward the terminal member recesses by the second set of support means, the cord thus extending back and forth between the recesses as desired.

Please replace the paragraph beginning at page 13, line 3, with the following revised paragraph:

A fourth aspect of the invention provides apparatus for making an assembly according to the second aspect of the invention, the apparatus comprising a mould and preferably also cord support means as described above comprising a plurality of attachments, each attachment comprising: a flexible cord; a cross-shaped member or a T-shaped member; and a terminal member, wherein, at one end of the flexible cord, the flexible cord is fixed to the cross-shaped or T-shaped member, said terminal member being fixed to the other end of the flexible cord, said assembly further comprising a common spine, each of said attachments being releasably attached to said common spine via said cross-shaped member or said T-shaped member, each attachment being independently severable from said common spine by means of a tagging gun, said apparatus comprising a mould having: a first recess for moulding said common spine and said cross-shaped or T-shaped members; second recesses for moulding said terminal members; and cord support means for supporting a cord that extends between and at least partially into said first and second recesses, wherein said first recess includes enlarged flange portions for surrounding the cord.

Please replace the paragraphs appearing at page 13, lines 21-26, with the following revised paragraph:

LYON, Roy
Appl. No. 10/510,603
April 19, 2005

~~Figures 4a – 4d~~ 4a – 4e show steps in a second method for the manufacture of an assembly such as that shown in figure 2a;

~~Figures 5a–5e show steps in a third method for the manufacture of an assembly such as that shown in figure 2a.~~

Please replace the paragraphs appearing at page 14, lines 1-25, with the following revised paragraph:

An embodiment of the first aspect A first embodiment of the invention is ~~an~~ the attachment shown in Figure 1, designed for attachment to a fabric article or articles, ~~shown in Figure 1~~. The attachment 1 comprises a length of flexible cord 5, one end of which is fixed to a terminal member 10 in the form of a moulded plastic ball and the other end of which is fixed to a moulded plastic T-shaped member 15. The T-shaped member 15 comprises two bars 16 and 17 which are substantially perpendicular to each other; one bar 17 of the bars ~~17~~ is longer than the other (bar 16) and has an enlarged flange 18 at one end to which the flexible cord 5 is fixed. The ~~rayon~~ cord 5 is thicker than the bar 17 (i.e. it has a larger cross sectional area), but thinner than the enlarged flange 18. In this embodiment the cord extends through the terminal member such that a short length 5a extends out of the end of the terminal member; in other embodiments the cord extends only partially into the terminal member.

~~In an alternative embodiment the bar 17 could extend past the junction with bar 16 so as to form a cross-shaped member or cross-bar, the extension of bar 17 for connection to a spine as shown in Fig 2a. Similarly the terminal member 10 could equally well be a paddle, hook, eye, snap fit connector, cross-bar, or T-shaped member, instead of a ball.~~

Please replace the paragraphs appearing at page 15, line 13- page 25, line 27, with the following revised paragraphs:

Figure 2a shows a portion of a second embodiment of the second aspect of the invention: an assembly comprising a elongate cylindrical plastic spine on which a plurality of attachments 1,1',1" are mounted. ~~Figure 2a only shows one end~~ shows only

an end portion of the assembly, the spine may have more than three attachments mounted on it. Each attachment is similar to the attachment shown in Figure 1, but has a cross-bar 15, 15', 15'' rather than a T-shaped member. The cross-bars T-shaped members are releasably attached to the spine 2, such that the attachments may be severed from the spine by use of a tagging gun as is conventionally known in the art. Intermediate teeth 3 are provided on the spine, between the attachments, to assist operation of the tagging gun.

Figure 2b shows an alternative terminal member 5b member 10b, in the form of plastic, such as nylon, moulded to give the appearance of a knot. Figure 2c shows a further alternative terminal member 5c member 10c: an arrow-shaped snap-fit connector. Similarly the terminal member 10 could equally well be a paddle, hook, eye, snap fit connector, cross-bar, or T-shaped member, instead of a ball.

A first method of manufacturing the attachment assembly of Figure 2a will now be described with reference to Figs. 3a-3f.

A five part mould is used. The mould 20 comprises a first part 21 opposing a second part 22, a third part 23 opposing a fourth part 24 and a parting plane between the first 23, and second 22 and third 23 and fourth 24 parts as shown in Figure 3d. When these mould parts are closed, they define a recess for moulding a plurality of cross-bars attached to a spine and a plurality of recesses for moulding ball shaped terminal members. There is also an upper, fifth part 25 of the mould which in use overlies the first and third parts 21, 23 and is described in more detail below. The mould is shown in cross section in Figures 3a — 3e. The cross section cuts perpendicular to the axis of the spine and so only a first recess 35 for moulding a cross-bar T-shaped member and a second recess 40 for moulding a ball shaped terminal member 10 can be seen in Figures 3a — 3e, however other recesses exist as shown in Figure 3f which is a partial cross-section of the mould 20 along the line A-A of Figure 3a, before the liquid plastic is injected. Figure 3f shows cross-bar recesses 35a-35d and terminal member recesses 40a-40d. The cross-bar recesses are joined by the spine recess 36 which runs perpendicular to the plane of the cross-section of Figures 3a-3e. The spine recess 36 is shaped for moulding a plurality of teeth 52 so that the

assembly when formed can be used with a tagging gun. The fifth part 25 of the mould 25 mould has an injection port 36 port 365 for supplying liquid nylon to the recesses via a channel 37. The channel 37 connects to the back end of the flange portion 135 of the cross-bar recess 35.

A flexible cord 30 (e.g. a rayon string cord) is placed in the mould such that it extends between the first and second recesses 35, 40. The cord 30 extends through or at least partially into each recess; this is important as it allows the cross-bar T-shaped member and terminal portions to be moulded around the cord 30, providing a simple, neat way of fixing the cross-bar T-shaped member and terminal portion to the cord. The channel 37 connects to the back of the flange portion 135 of the cross-bar T-shaped member recess 35. Thus the speed and pressure of the injected plastic ensures that the cord is kept correctly positioned in the recess 35 to ensure that the plastic is moulded around the cord.

The cord 30 extends into the cross-bar T-shaped member recess 35, only as far as the enlarged flange portion 135 thereof, it does not extend as far as the cross part 139. Separate rayon string cords are likewise placed between the other terminal member and cross-bar T-shaped member recesses (see Figure 3f).

In Figures 3a and 3b the nylon has already been injected through the injection port 36 of the closed mould 20 and allowed to solidify so as to form the cross-bar T-shaped member 15 and the ball shaped terminal member 10. The cross-bar T-shaped member and terminal member have been moulded around the cord 30 and are therefore securely fixed to it. The same is true of the other cords and cross-bar T-shaped member and terminal member recesses (shown in the Fig 3f cross section). All the cross-bars T-shaped members are connected by the moulded spine 2 to which they are attached. The liquid plastic also solidifies in the channel 37 to form a connecting runner 50 which can be snapped or cut off as shown in Figure 3c once the fifth mould part 25 has been opened.

Once the nylon has solidified and the cross-bars T-shaped members 15, and terminal members 10 and spine 2 have been formed, and the runner so removed, the mould parts 21-24 are opened by separating the parts 21, 22, 23, 24 along their

common parting plane, as shown in Figure 3d. 20 The cord 30 is then pulled along in the direction from the terminal member recess to the ~~cross-bar~~ T-shaped member recess (the left to right direction in Figure 3d), until the terminal member 10, which has just been formed, is positioned between the third 23 and fourth 24 mould parts as shown in Figure 3e. The cord 30 attached to the terminal member 15 is thus pulled through the mould, so that it is in position for forming a new attachment. The other cords and terminal members are likewise pulled through the mould, in fact all can easily be pulled through at once, to the desired position, as they are all connected via their respective ~~cross-bars~~ T-shaped members to the spine 2.

The first 21 and second 22 mould parts are then closed so as to grip the cord 30 (and the other cords shown in Figure 3f), but the third 23 and fourth 24 mould parts are left open as shown in Figure 3e, so that the cords may easily be cut. The cord 30, then extends back from the terminal portion 10 through the mould parts 21 and 22, through the enlarged flange portion 135 of the ~~cross-bar~~ T-shaped member recess and through the terminal portion recess 40. The cord 30 is then cut just below the terminal portion 10, at the point where it leaves the enlarged flange recess 135, to separate the attachment (i.e. the terminal portion 10, ~~cross-bar~~ T-shaped member 15 and the length of cord therebetween) which has just been formed, from the rest of the cord 30. The other cords (shown in Figure 3f) are likewise cut. The mould parts 23 and 24 are then closed and liquid nylon is again injected and allowed to solidify to form new attachments and a new spine. The process can be repeated as many times as necessary to make the required number of attachments assemblies.

A second method of manufacturing the attachment ~~making an assembly such as that shown in~~ of Figure 2a will now be described with reference to Figures 4a-4e.

A two part mould is used. The mould 20 comprises a first part 21 opposing a second part 22 with a parting plane between them as shown in Figure 4b. When these mould parts are closed, they define recesses 35 for moulding a plurality of cross-bars attached to a spine and a plurality recesses for moulding arrow-shaped terminal members. The second mould part includes a sloped channel 100 that allows the cord 30 to access the mould. The sloped channel 100 also helps align the cord at the correct

position for moulding. Preferably, the channel is aligned with the cord running between the terminal member recess and the enlarged flange portion of the cross-bar recess such that the passage of the thread through the mould is in a straight line/path.

The mould is shown in cross section in Figures 4a, 4b and 4d. The cross section cuts perpendicular to the axis of the spine at the point where the sloped channel 100 enters the second part of the mould 22 and so only a first recess 35 for moulding a cross-bar and a second 20 recess 40 for moulding an arrow-shaped terminal member 10 can be seen in Figures 4a, 4b and 4d. In fact, only the enlarged flange portion 135 of the first recess 35 is seen in the cross-section Figures. This is because the cross-part 139 of the recess 35 is in a different vertical plane to the enlarged flange portion 135 of the recess 35. This can be more clearly seen in Figure 4G. This off-setting of the cross-part 139 of the recess is to allow the cord to enter the mould (through its respective sloped channel) and then pass between the enlarged flange portion 135 of the recess 35 and the recess 40 for moulding the terminal member in a straight path. If the cross-part 139 was not off-set, the path of the cord between the recesses would be distorted from a straight path and this may lead to problems in the subsequent steps of pulling the moulded attachments from the mould and drawing more cord into the mould.

The layout of the cross-bar recesses are best shown in Figure 4c which is a partial cross-section of the mould 20 along the line B-B of Figure 4a, before the liquid plastic is injected. Figure 4c shows cross-bar recesses 35a-35d and terminal member recesses 40a-40d. The cross-bar recesses are joined by the spine recess 36 which runs perpendicular to the plane of the cross-section of Figures 4a, 4b and 4d. The spine recess 36 is shaped for moulding a plurality of teeth 52 so that the assembly when formed can be used with a tagging gun.

The upper portion of the first part of the mould 21 cooperates with the lower portion of the second part of the mould 22 to define an injection port 36 for supplying liquid nylon to the recesses via a channel 37. The channel 37 connects to spine recess 36 and to the terminal member recesses 40a-4-d. The terminal member recesses are joined by a second channel 37a. In preferred embodiments, there are two injection ports, one each side of the mould.

A flexible cord 30 (e.g. a rayon string cord) is placed in the mould such that it extends in a straight line between the first and second recesses 35, 40. The cord 30 extends through or at least partially into each recess. The cord 30 extends into the cross-bar recess 35, only as far as the enlarged flange portion 135 thereof, it does not extend as far as the cross part 139. The cord exits the top side of the enlarged flange and continues in a straight line to and then through the sloped channel 100 in the second part of the mould 22 to a reel where excess cord, yet to made into attachments is stored. The cross part 139 of the recess 35 is off 15 set from the path of the cord to allow the cord to pass in a straight line from the enlarged flange portion 135 of the recess 35 to the sloped channel 100. Each sloped channel is vertically aligned with its respective enlarged flange portion 135 of the recess 35.

Separate rayon string cords are likewise placed between the other terminal member and cross-bar recesses (see Figure 4c). Each cord will enter the mould via sloped channel 100. Figures 4a, 4b and 4d show only a single sloped channel 100 but a separate channel (aligned with its respective enlarged flange portion 135 of the recess 35) will be provided for each cord entering the mould. The channels assist the correct positioning of the cord between its respective enlarged portion 135 of the recess 35 and terminal member recess. The cord runs in a straight path from the sloped channel, through the enlarged flange portion of the recess 35 and to the terminal member recess.

In Figure 4a the nylon has already been injected through the injection port 36 of the closed mould 20 and allowed to solidify so as to form the cross-bar 15 and the arrow shaped terminal member 10. The enlarged flange and terminal member have been moulded around the cord 30 and are therefore securely fixed to it. The same is true of the other cords and enlarged flange and terminal member recesses (shown in the Fig 4c cross section). All the cross-bars are connected by the moulded spine 2 to which they are attached. The liquid plastic also solidifies in the channel 37 to form a connecting runner which can be snapped or cut off at a later stage.

Once the nylon has solidified and the cross-bars 15, terminal members 10, spine 2 and runners have been formed, the mould parts 21 and 22 are opened by separating the parts along their common parting plane, as shown in Figure 4b. The attachment is

then ejected from the mould by an ejector 102. Preferably, one ejector is located in the vicinity of the terminal member recess whilst another is located in the vicinity of the cross-bar recess. Such ejectors are standard in the art. The ejectors located in the vicinity of the cross-bar recesses also assist in the correct positioning of the cord in the cross-bar recess as shown in Figure 4b. The ejector pushes the cord into horizontal alignment with the enlarged flange portion 135 of the recess 35.

Once the attachment is formed, the cord 30 is pulled along in the direction from the cross-bar recess to the terminal member recess (the right to left direction in Figure 4b), until the cross-bar 15, which has just been formed is outside the mould. The cord 30 attached to the cross-bar 15 is thus pulled into the mould through the sloped channel 100; so that it is in position for forming a new attachment. The other cords are likewise pulled into the mould through their respective sloped channels. In fact all of the moulded attachments can easily be pulled from the mould at once, with the new portions of cord being pulled to the desired position, as all of the moulded attachments are connected via their respective cross-bars to the spine 2 and also to runners formed in the channels 37 and 37a. The pulling of the moulded attachments from the mould can be carried out using gripping and pulling means 103 which may be remote from the mould. This gripping means can hold the cord taught so that new cord yet to be moulded into an attachment lies in a correct position between the necessary recesses.

The first 21 and second 22 mould parts are then closed so as to grip the cord 30 (and the other cords shown in Figure 4c) and liquid nylon is again injected and allowed to solidify to form new attachments and a new spine. The process can be repeated as many times as necessary to make the required number of attachments assemblies.

The completed attachment pulled from between the separated moulds is subsequently moved to a cutting apparatus 101 as seen in Figure 4d. It can be seen that the cords a) between the moulded attachment in the cutting apparatus, b) between the moulded attachment waiting to enter the cutting apparatus and c) of the of the moulded attachment just formed in the mould are all vertically and horizontally aligned with each other and are also vertically aligned with the sloped channel such that the cord always passes in a straight path with no deviation from a vertical plane. The cord is

severed (by vertical knives in the cutting means 101) at the point where it exits the spine side of the elongated flange and also at the point where it exits the terminal member (at the side remote from the cross-bar). The cutting apparatus also severs the runners formed in the channels 37a between the terminal members and the runners between the spine and the terminal member of the attachment formed in the channels 37a. This leads to an array of the desired attachments formed on a spine.

Please replace the paragraphs appearing at page 26, lines 1- page 29, line 22, with the following revised paragraphs:

A third second method of making an assembly such as that shown in Figure 2a will now be described with reference to Figures 4a-4e.

A partial cross-sectional plan view of the mould along a central parting plane of the mould is shown in Figures 5a-5d Figures 4a-4e. The mould has a plurality of generally spherical recesses 81, 82, 83, 84 for moulding ball shaped terminal members and a recess 90 for moulding a spine and a plurality of cross-bars T-shaped members releasably attached to the spine. The recess 90 has a spine recess portion 91, intermediate teeth recess portions 92 and cross-bar T-shaped member recess portions 93-96. The mould is designed to form a spine having four attachments, although in alternative embodiments larger moulds capable of forming ten or more attachments could be used. The necessary modifications will be apparent to a person skilled in the art.

The terminal member recesses 81-84 are provided towards one end of the mould and the spine and cross-bar recess 90 is provided towards an opposite end of the mould. The cross-bar T-shaped member recess portions of the recess 90 extend towards the terminal member recesses 81-84.

The pins can be divided into a first set, comprising pins 100, 102, 103, 105 and 106 and a second set comprising pins 101, 102, 103, 105 and 106 and a second set comprising pins 101 and 104. In the starting configuration shown in Figure 5a Figure 4a, the pins in the first set are aligned with each other along a line substantially parallel to the spine portion 91 of the recess 90. The pins in the second set 101 and 104 are also

aligned with each other along a line substantially parallel to the spine portion 91 of the recess 90. The pins in the first set are fixed in place near the ends of the ~~cross-bar T-shaped member~~ recess portions 93, 94, 95 and 96 of the recess 90. The pins in the second set are slidable from a first position adjacent the ~~cross-bar T-shaped member~~ recess portions 93-96 and closer to the spine recess 91 than the pins in the first set, to a second position behind the terminal member recesses 81-84, as shown in Figure 5c (Figure 5b Figure 4c (Figure 4b shows an intermediate position as the pins are being slid between their first and second positions).

In the starting configuration, shown in Figure 5a Figure 4a, the pins in the first set are fixed in place near the ~~cross-bar T-shaped member~~ portions of the recess 90 and the pins in the second set 101 and 104 are in their first position adjacent the ~~cross-bar T-shaped member~~ recess portions. In general there is either one pin from the second set, or two pins from the first set between each pair of ~~crossbar T-shaped member~~ recess portions of the recess 90. A flexible cord 110 is fed into the mould so that it extends between the pins of the first and second sets and in a straight line approximately parallel to the spine portion 91 of the recess 90.

The pins in the second set 101 and 104 (which may be mounted in grooves in the mould) are then slid to their second position, adjacent the terminal member recesses as shown in Figure 5c Figure 4c. The arrows in Figure 5b Figure 4b show the direction of movement of the pins.

The pin 101 has two parts 101a and 101b which separate in the second position to be behind terminal portion recesses 81 and 82 respectively. The pin 104 also has two parts 104a and 104b which separate in ~~the~~ ~~is~~ in its second position to fall behind terminal member recesses 83 and 84 respectively. The pin parts 101a, 101b, 104a and 104b are then temporarily locked into their second positions, shown in Figure 5c Figure 4c.

Liquid plastic is then injected into the terminal member 81-84 recesses and ~~cross-bar and spine~~ the recesses 90, through an injection port (which is not shown in Figures 5a-5d Figures 4a-4d). The plastic is allowed to solidify so as to form terminal members 121-124 and a spine 130 with releasably attached ~~cross-bars~~ T-shaped

LYON, Roy
Appl. No. 10/510,603
April 19, 2005

members 131-234 and intermediate teeth 135 teeth 138 disposed between the cross-bars as shown in Figure 5d Figure 4d. As should be evident, the spine 130, ~~cross-bars~~ T-shaped members 131-134 and intermediate teeth 138 are integrally formed. The connection between each ~~cross-bar~~ T-shaped member and the spine being weak enough that it can be cut or severed by a tagging gun. The liquid plastic is injected through a third mould part 203 having an injection port 36 port 365 and channel 37 for delivering the liquid plastic to the recesses in the first 201 and second 202 mould parts; the channel contacts (is in fluid communication with) the spine portion 91 of the ~~cross-bar~~ T-shaped member and spine recess 90. As in the first method, plastic which solidifies in the channel 37 can be removed.

Surplus pieces of cord and lengths of cord connecting the attachments can then be cut. Thus surplus cord is cut at locations C and E adjacent the outermost ~~cross-bars~~ T-shaped members and unwanted cord connections are cut at locations A and B in the region of the pins 101 and 104 between adjacent terminal members and at location D between two of the ~~cross-bar~~ T-shaped member portions 132 and 133 which have two cord supporting pins 102 and 103 between them.

The skilled man will appreciate that alterations to and variations of the above embodiments are possible while still keeping within the scope of the appended claims.